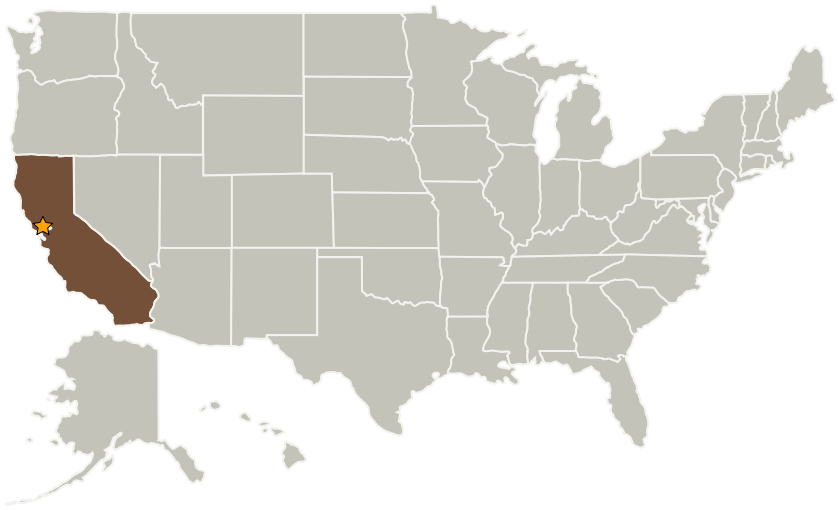
Novel Instrument to Measure Aerosol Fluorescence, Absorption, and Scattering, Phase I

Completed Technology Project (2004 - 2004)

Project Introduction

Picarro, Inc proposes to develop the first cavity ringdown spectroscopy (CRDS) system to measure fluorescence, absorption, and scattering properties of atmospheric aerosols in real-time and in-situ. These unique capabilities will enhance NASA?s studies of aerosol properties including single-scatter albedo, size distributions, and particle types. The fluorescence spectra will enable discrimination between biological and non-biological aerosols. The flight-deployable instrument will weigh less than 25 kg and have a measurement time resolution of 1 second. Our approach utilizes a high-finesse CRDS cavity to measure extinction and to enhance the scattering and fluorescence signals attainable using low power diode laser based light sources.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
★Ames Research Center(ARC)	Lead Organization	NASA Center	Moffett Field, California
Informed Diagnostics Inc	Supporting Organization	Industry	Sunnyvale, California

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Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Ames Research Center (ARC)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

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Primary U.S. Work Locations
California

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Principal Investigator:

Robert Provencal

Technology Areas

Primary:

- TX08 Sensors and Instruments
  - TX08.1 Remote Sensing Instruments/Sensors
    - TX08.1.5 Lasers